

## Beef Species I

**400 Post-weaning growth performance of heifers grazing Tasmanian native pastures and the estimation of inbreeding levels using random amplified polymorphic DNA markers.** A. E. O. Malau-Aduli\*<sup>1</sup> and M. Dunbabin<sup>2</sup>, <sup>1</sup>*University of Tasmania, Hobart, Tasmania, Australia*, <sup>2</sup>*Bangor, Dunalley, Tasmania, Australia*.

The aims of this study were to evaluate the growth performance of Hereford, Angus, Hereford × Angus and Hereford × Saler heifers within the same herd grazing native pastures and to estimate homozygosity and inbreeding coefficients using random amplified polymorphic DNA (RAPD) markers. Post-weaning liveweight (BW), average daily gain (ADG) and body condition score (BCS) on a scale from 0 to 5 were monitored monthly from 2005 to 2006. Genomic DNA was extracted from blood samples, amplified using RAPD primers, fragments resolved by gel electrophoresis and banding patterns elucidated under UV light. Estimation of homozygosity through band sharing patterns was utilised in determining within-breed inbreeding levels. Regardless of breed, LWT, BCS and ADG of heifers followed a typical sigmoid curve pattern characterised by a decline in average BW from 200 kg in May to 188 kg in June, a continuous monthly increase through to March 2006 when it reached a peak (380 kg) before a final decline to 375 kg in May. The BCS ranged from 1.6 to 3.6 while ADG ranged from -0.4 to 1.5 kg/d. Significant genetic variation was observed between the different breeds in that BCS and BW of purebred Angus heifers were lower than those of purebred Hereford and their crosses with Angus and Saler. Average BW of the Angus breed ranged from 164-349 kg, with BCS ranging from 1.4 to 3.3 compared to the Hereford (186-383 kg, 1.6-3.6), Hereford × Angus (192-383 kg, 1.7-3.6) and Hereford × Saler (192-385 kg, 1.6-3.7), respectively. The ADG of the Angus was not different from those of Hereford and their crosses indicating that the Angus was perhaps better in terms of feed efficiency since they probably ate less and gained the same weight as the heavier breeds that must have eaten more commensurate with their maintenance requirements. The strongest residual correlation ( $r=0.98$ ) was between BW and BCS. Average band sharing frequencies ranged from 0.60 in the crossbreds to 0.96 in the purebreds with estimated inbreeding coefficients ranging from 0.5% to 3%, respectively, which is very low.

**Key Words:** RAPD Markers, Post-weaning Growth, Beef Cattle